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BRIEFER ARTICLES

A NEW HEPATIC FROM THE EASTERN UNITED STATES.

(WITH PLATE XII)

ALTHOUGH the species of Diplophylleia described below is not uncommon along the Atlantic coast, and has long been known to hepaticologists, it has been confused with other members of the genus. As the synonymy shows, Sullivant referred the plant to *Jungermannia obtusifolia* Hook., now known as *Diplophylleia obtusifolia* Trevis. This distinct species is widely distributed in Europe and has recently been reported by Stephani from Japan.[1] The only American station, however, which can be quoted with any degree of certainty is Hector, British Columbia, where it was collected in 1889 by Macoun and distributed in *Canadian Hepaticae*, no. 100. Austin threw doubts upon Sullivant's determination of the eastern plant, but instead of recognizing in it a distinct species referred it as a forma *minor* to his *Scapania albicans*, var. *taxifolia*. Nearly every writer on the Hepaticae now regards this so-called variety as a species distinct from *Diplophylleia albicans* (L.) Trevis., and it appears in recent literature as *D. taxifolia* (Wahl.) Trevis. With regard to the exact status of Austin's var. *taxifolia minor*, no views have recently been expressed except those of Pearson,[2] who apparently accepts the old determination of Sullivant.

Diplophylleia apiculata, sp. nov. — *Jungermannia obtusifolia* Sull., Gray's Manual, Ed. 1, 694. 1848 (not Hooker). *Scapania albicans*, var. *taxifolia minor* Aust. Hep. Bor.-Amer. 23. 1873.—Yellowish-green, more or less tinged with brown or red, growing in depressed mats: axes 0.17^{mm} in diameter, sparingly pinnate, both primary and secondary prostrate at the base and ascending toward the apex, with abundant pale rhizoids in the prostrate portions: leaves imbricated, deeply and unequally complicate-bilobed; antical lobe erect-spreading, ovate, 0.4^{mm} long, 0.2^{mm} wide, slightly narrowed at the base and attached by an almost transverse line of insertion, not decurrent, apex varying from rounded to subacute, mostly apiculate, margin entire or indistinctly and irregularly denticulate; keel slightly concave; postical lobe falcate, linguiform, 0.75^{mm} long, 0.3^{mm} wide, scarcely narrowed at the almost transverse base, apex obtuse to subacute and usually apiculate, the apiculum consisting of one or two cells, margin subentire or sparingly and irregularly denticulate, especially toward the base, occasionally with one or more coarser teeth near the apex, postical margin usually forming a distinct but wide angle with the keel; cells of lobes isodiametric in apical region and along free margin, $12\,\mu$ in diameter at the apex, $18 \times 12\,\mu$ in the middle, and $32 \times 12\,\mu$ at the base and along keel, cell-walls somewhat thickened, the thickening more or less uniform but with evident trigones in the median and basal portions of the lobes, cuticle varying from densely and finely verruculose to nearly smooth: inflorescence autoicous: ♀ inflorescence usually on a short branch, more rarely on an elongated branch, sometimes innovating on one or on both sides, commonly without innovation; leaves increasing rapidly in size toward perianth; bracts mostly in two or three pairs, similar to the leaves, their lobes obtuse to rounded but usually apiculate at the apex, antical lobe 0.85^{mm} long, 0.35^{mm} wide, postical lobe 1.2^{mm} long, 0.45^{mm} wide; perianth about one-third exserted, obovoid, 1.4^{mm} long, 0.7^{mm} wide, narrowed toward the base, somewhat constricted at the mouth, slightly compressed and with four to six grooves in the upper part, separated by rounded keels, mouth irregularly lacerate with setulose divisions, the ultimate setae sharp, one to three cells long: ♂ inflorescence borne on a leading branch, more rarely on a short branch, often proliferating at the apex and again floriferous; bracts in two or three pairs, similar to the leaves but with a strongly convex keel, antical lobe broad, inflated at the base; antheridia borne singly; paraphyses wanting: capsule oval, reddish-brown, borne on a slender stalk; spores $13\,\mu$ in diameter, yellowish, minutely verruculose: gemmae borne in irregular masses at the apices of the upper leaves of a branch, composed of one or two angular cells.

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[1] Bull. Herb. Boissier 5: 78. 1897.

[2] Hepaticae of the British Isles, 242. 1900.

On shaded banks. RHODE ISLAND: Providence and Exeter (*Collins*). CONNECTICUT: Killingworth (*Hall*); Woodbridge and Hamden (*Eaton*); Orange (*Evans*). PENNSYLVANIA: Philadelphia (*James*). DISTRICT OF COLUMBIA (*Holzinger*). VIRGINIA: Comer creek (*Mrs. Britton* and *Miss Vail*). GEORGIA: Tallulah falls (*Underwood*). The specimens from Orange, Conn., in the herbarium of the writer, may be designated as the type.

EXSIC.: *Musc. Alleg.* 230 (as *Jungermannia obtusifolia*); *Hep. Bor.-Amer.* 23 (as *Scapania albicans*, var. *taxifolia minor*).

Whether the inflorescence of *D. apiculata* is invariably autoicous or whether it may sometimes be dioicous is difficult to determine, since it is not always possible to demonstrate the connection between the male and female axes. This is especially true of plants with fully developed perianths, because the short female branches very early root at the base, lose their connection with the parent axes and continue their development independently. In plants with young perianths, however, and more particularly in those with unfertilized archegonia, the connection between male and female branches is usually clear and apparently indicates the normal condition of the species. The fact that a male axis sometimes proliferates at the apex and bears several successive male inflorescences without branching might seem to indicate that the species was on the way to becoming dioicous. Such a male branch indeed becomes eventually a distinct unisexual individual from the dying away of its older portions. Nevertheless, the occurrence of male individuals in a monoicous species is by no means unusual and is apparently brought about in some cases by unfavorable conditions.

The new species is related to *D. taxifolia* and also to *D. obtusifolia* and is in some respects intermediate between them. It is a smaller plant than *D. taxifolia* and differs from it also in its apiculate leaves and in its inflorescence, which is autoicous instead of dioicous. *D. taxifolia*, moreover, occurs usually on shaded rocks, while the new species prefers earthy banks. *D. apiculata* agrees with *D. obtusifolia* in its size and also in its place of growth, but differs from it in its apiculate leaves and bracts and in being autoicous instead of paroicous. *D. obtusifolia*, to be sure, occasionally produces branches which are purely male, but these occur on the same individuals or at any rate in the same tufts as bisexual branches, and the latter are undoubtedly the more typical. Another close relative of *D. apiculata* is *Diplophyllum gymnostomophilum* Kaalaas[3] of Norway and Sweden. This species is dioicous, the male and female plants growing in distinct tufts. The Italian *Diplophylleia scapanioides* Massal.,[4] a near ally of the Scandinavian species, is also dioicous. — ALEXANDER W. EVANS, *Yale University.*

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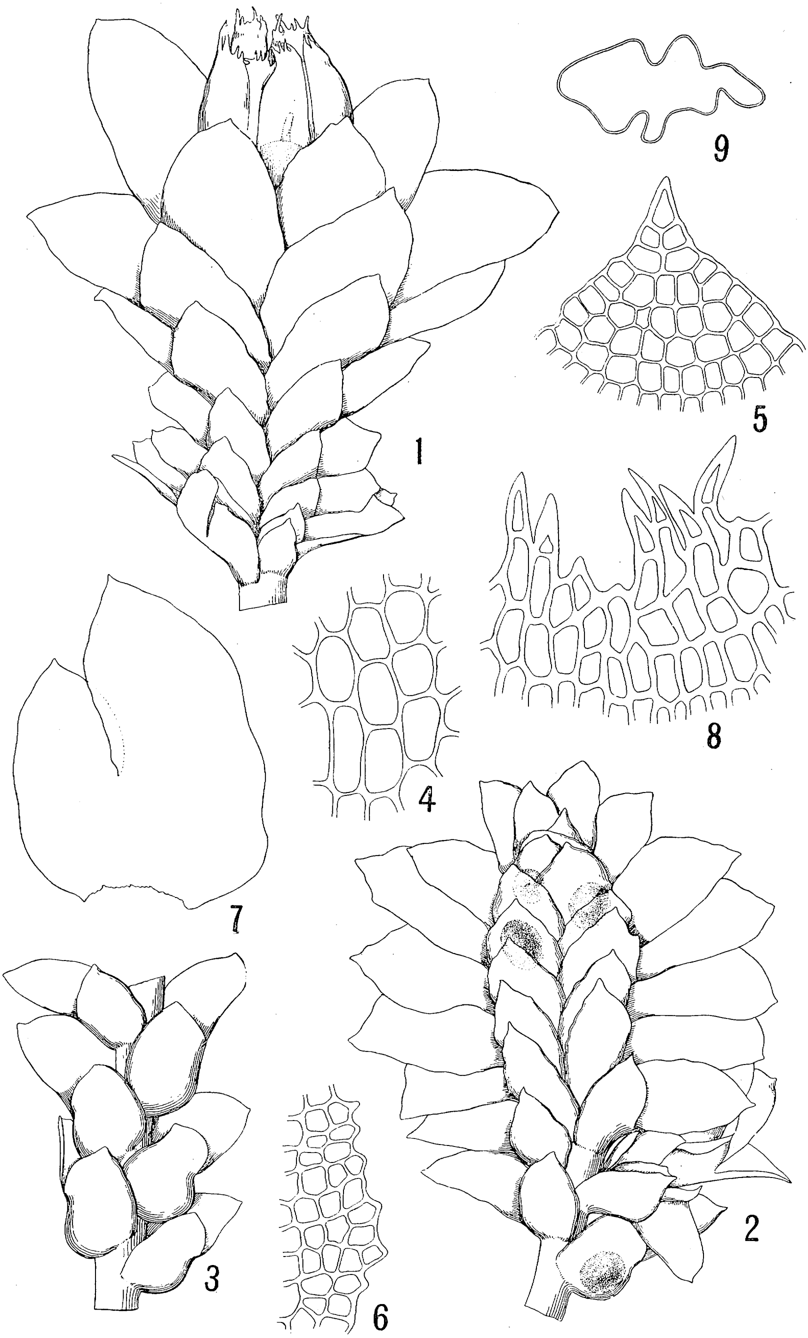
[3] *Scapania gymnostomophila* Kaalaas, Bot. Notiser 1896 : 21. *Martinellia gymnostomophila* Arnell & Jensen, Bihang till K. Sv. Vet.-Akad. Handl. **21**^{10} : 28. *pl.* — *f. B.* 1896. *Diplophyllum gymnostomophilum* Kaalaas, Vidensk. Skrift. I. 1898^{9} : 4–9. *f. 1–4.*

[4] *Jungermannia seapanioides* Massal. Acta Soc. Ven.–Trent. **6** : [64]. *pl. 3.* 1879. *Diplophylleia scapanioides* Massal. Ann. dell' Ist. Bot. di Roma **2**^{2} : [18]. 1886. See also C. Müller (Freiburg), Bot. Centralblatt **82** : 411. 1900.



DIPLOPHYLLEIA APICULATA Evans

EXPLANATION OF PLATE XII.

FIG. 1. Branch with perianth, antical view. × 36.
FIG. 2. Branch with ♂ inflorescence, antical view. × 48.
FIG. 3. Branch with old perigonial bracts. × 48.
FIG. 4. Cells from middle of postical lobe. × 420.
FIG. 5. Cells from apex of same. × 300.
FIG. 6. Cells from margin of same near base. × 300.
FIG. 7. Perichaetial bract. × 48.
FIG. 8. Teeth from mouth of perianth. × 300.
FIG. 9. Cross-section of perianth in upper third. × 48.
The figures are all drawn from the type-specimens.